ABSTRACT

Inorganic, porous particles attract oleo material within a flow of fluid such as a liquid or gas. The particles can be arranged into a packed bed to filter the oleo material from the fluid flow, which can agglomerate in the pores of the filtering particles. Agglomeration of the filtrate within the pores of the particles does not impede the flow of fluid through the interstices of bed of particle and, hence, enhances the filtering capacity of the particles. Furthermore, the inorganic particles are re-usable, in that they can be subjected to harsh filtrate-separation techniques, e.g., heat treatment, solvent extraction and detergent washing, yet retain their desired properties. Methods of making and using these particles also are described herein. Inorganic, porous particles filter a substance or substances from a flow of fluid such as a gas. The particles can be arranged into a bed to filter a substance (filtrate substance) from a fluid. The filtrate substance can collect on or within the pores of the inorganic particles. Collection of the filtrate substance within the pores of the particles rather than within the interstices of the bed enhances the filtering capacity and does not impede the flow of fluid through the bed of particles. Furthermore, the inorganic particles are re-usable, in that they can be subjected to harsh filtrate-separation techniques, e.g., heat treatment, solvent extraction, detergent washing, and centrifugal separation, yet retain their desired properties. A separation cartridge is disclosed which comprises a first separation medium, a second separation medium, and a frame. The second separation medium is positioned adjacent to the first separation medium. The frame is configured to hold the first and second separation mediums. The separation cartridge is configured to separate one or more entrained substances from a gas stream in a hood system.